

In the Specification:

Please amend the specification as follows:

On page 28, line 7 to page 30 line 23, delete the entire text and insert in lieu thereof the following replacement paragraphs. Marked-up copies of the amended paragraphs showing changes made are attached as Appendix 1.

BRIEF DESCRIPTION OF THE DRAWINGS

C¹ FIGURES 1A, 1B and 1C are flow schematics showing the manipulations necessary to convert pT0021, an arsenite inducible vector containing the luciferase gene, into pTHA or pTM, two ars inducible vectors, or pTMLac, a lactose-inducible promoter. Figure 1A: Vector pTHA contains BamH I and Sal I cloning sites and a downstream HA epitope tag. Figures 1B and 1C: Vector pTM and pTMLac contain Bam HI and Hind III cloning sites and no HA epitope tag.

C² FIGURES 2A and 2B are schematic representations of the cloning steps involved to place the DNA segments of any of ORFs 12, 25, or other sequences into vectors to assess inhibitory potential. Figure 2A: For subcloning into pTHA, individual ORFs e.g. 44AHJD ORF 12 and 25 were amplified by the PCR using oligonucleotides targeting the start codon and the penultimated codon of the ORFs. Using this strategy, BamHI and SalI sites were positioned immediately upstream or downstream, respectively of these two codons. Following digestion with BamHI and SalI, the PCR fragments were subcloned into the same sites of pTHA.

FIGURE 2B: For subcloning into pTM or pTMLac, (exemplified for pTM in b) individual ORFs were amplified by the PCR using oligonucleotides targeting the ATG and stop codons of the ORFs. Using this strategy, Bam HI and Hind III sites were positioned immediately upstream or downstream, respectively of the start and stop codons of each ORF. Following digestion with Bam HI and Hind III, the PCR fragments were subcloned into the same sites of pTM or pTMLac. Clones were verified by PCR and direct sequencing.

FIGURES 3A and 3B show schematic representations of the functional assays used to characterize the bactericidal and bacteriostatic potential of all predicted ORFs (>33 amino acids) encoded by bacteriophage 44AHJD. Fig. 3A: Functional assay on semi-solid support media. Fig. 3B: Functional assay in liquid culture.

FIGURES 4A and 4B show the results of the functional assay on semi-solid support media to identify bacteriophage 44AHJD ORFs with anti-microbial activity. Figure 4A shows the lists of the 31 bacteriophage 44AHJD ORFs that were screened in the functional assay and Figure 4B shows inhibition of bacterial growth following induction of expression of phage 44AHJD ORF 12 and 25 from three clones of *Staphylococcus aureus* transformants tested at four different concentrations. One clone of *Staphylococcus aureus* transformed with the non-inhibitory ORF (77 bacteriophage ORF 30 cloned into pT vector) was used as control. From these experiments, it is clear that expression of these two ORFs leads to the inhibition of growth of *Staphylococcus aureus*.

FIGURES 5A and 5B are graphs showing functional assays bacteriostatic or bactericidal activity of bacteriophage 44AHJD ORF 12 (Fig. 5A) and ORF 25 (Fig. 5B) in liquid media. The OD₅₆₅ values (Frames 1 and 3) and colony forming units (CFU) over time (Frames 2 and 4) is shown. Growth inhibition assays were performed as detailed in the Detailed Description. The OD₅₆₅ values and the number of CFU were determined from cultures of *Staphylococcus aureus* transformants harboring a given bacteriophage inhibitory ORF, in the absence or presence of the inducer. The identity of the expression vector and subcloned ORF harbored by the *Staphylococcus aureus* is given at the top of the each graph. The value of OD and the number of CFU was also determined from non-induced and induced control cultures of *Staphylococcus aureus* transformants harboring a non-inhibitory phage ORF cloned into the same vector. Each graph represents the average obtained from three *Staphylococcus aureus* transformants.

FIGURE 6 shows the pattern of protein expression of the inhibitory ORF in *S. aureus* in the presence or in the absence of induction with sodium arsenite. In individual inhibitory ORF (44AHJD phage ORF 12 and 25) cloned into the pTHA vector, the HA tag is set inframe with the ORF and is positioned at the carboxy terminus of each ORF. An anti-HA tag antibody was used for the detection of the ORF expression. The identity of the subcloned ORF harbored by the *Staphylococcus aureus* transformants is given at the top of the panel.

FIGURES 7A and 7B depict the results from affinity chromatography using GST and GST/44AHJD ORF 25 as ligands with a *S. aureus* extract prepared by French pressure cell lysis and sonication. Eluates from affinity columns containing the GST and GST/ORF25 ligands at 0, 0.1, 0.5, 1.0, and 2.0 mg/ml resin were resolved by SDS-12.5% PAGE. Proteins were visualized by silver staining. Micro-columns were eluted with: A) 1 M NaCl ABC (ACB; 20 mM Hepes pH 7.5, 10 % glycerol, 1 mM DTT, and 1 mM EDTA); and B) 1% SDS. Each molecular weight marker is approximately 100 ng. The lanes labeled ACB indicate eluates from a 2.0 mg/ml ligand column loaded only with ACB buffer containing 75 mM NaCl. The arrows indicate proteins specifically with GST/ORF25.

FIGURE 8 shows results of a tryptic peptide mass spectrum of the PT48 protein that interacted with 44AHJD ORF 25 and that was eluted with 1% SDS and labelled: PT48 in Figure 7B. The control band excised from the 48 kDA region of the gels did not contain PT48.

FIGURE 9 shows the identification of PT48 as *S. aureus* DNA-directed DNA polymerase III beta subunit protein from the Genbank™ database (accession number: 1084187).

FIGURES 10A and 10B show the nucleotide sequence (Fig. 10A; SEQ ID NO: 166) and amino acid sequence (Fig. 10B; SEQ ID NO: 167) of *S. aureus* DnaN.